UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
SIUSLAW RESOURCE MANAGEMENT AREA

ENVIRONMENTAL ASSESSMENT
Number OR-090-04-16

Project Name:

KLICKITAT OAK WOODLAND RESTORATION AND DEMONSTRATION PROJECT: LOGGING CAMP AND DILLACORT CREEK CONSERVATION PROPERTIES

Location: Klickitat County, Washington

I. INTRODUCTION

A. Background

The Bureau of Land Management (BLM), Eugene District, in Oregon, is working collaboratively with a variety of partners to restore oak habitat within its District as well as regionally within the Pacific Northwest. Oak habitats are a threatened resource that provides a high level of benefit to wildlife. Additionally, since a large portion of remaining oak habitat exists on private lands, it is recognized that working with private landowners to manage this habitat type is an important element to protecting this resource as a whole.

The BLM Eugene District has applied for and received a grant from the National Fish and Wildlife Foundation (NFWF) to implement and demonstrate appropriate oak restoration techniques. As part of this grant, the BLM Eugene District is proposing to fund the restoration of approximately 100 acres of oak and oak/conifer habitat on conservation lands owned and managed by Columbia Land Trust. The purpose of this restoration project is to enhance the oak communities bringing them closer to pre-settlement conditions, to create conditions conducive to mast production and cavity creation, and to reduce the potential adverse impacts resulting from a catastrophic fire. Restoration activities would be monitored over the long-term to determine project effectiveness and the sites would be used as demonstration sites for landowner education and outreach. In addition, Columbia Land Trust will use information gained as part of this project to plan future stewardship work on the Dillacort and Logging Camp conservation properties.

B. Project Location

The Klickitat oak restoration project sites are located along tributaries to the Klickitat River in Klickitat County, Washington. Dillacort Creek is specifically located in Sections 17, 18, 19 and 20 of Township 3 North, Range 13 East, Willamette Meridian. The Creek enters the Klickitat River at River Mile 5 after flowing through a large arch culvert located under State Route 142. The Logging Camp property is located in Section 31 of Township 4 North, Range 13 East, Willamette Meridian. The Creek enters the Klickitat River at approximately River Mile 9.5.

Figure 1. Project Location

C. Purpose and Need

The oak and associated habitats on the property are common in Klickitat County, which has the largest remaining acreage of Oregon white oak habitats in the state of Washington and perhaps the largest contiguous distribution of oak in the Pacific Northwest. These plant communities also represent some of the easternmost area of Oregon white oak habitat in the Pacific Northwest and provide key habitat to a number of plant and animal species. While most oak habitats in the PNW are found on private lands (e.g. 98% in Oregon), Klickitat County contains a significant public ownership of oak resources which provides unparalleled opportunities for landscape level management of these habitats. To date, active restoration of these lands has not been implemented at meaningful scales. Subsequently, very little research or analysis has been completed to guide such treatments.

The proposed project sites owned by the Land Trust can make a major contribution to conservation of white oak habitats by providing demonstration of cutting edge management and restoration practices in this habitat type. These lands were selected for inclusion in this NFWF grant based on the following factors: lands are permanently secured for resource conservation; there are a diversity of oak habitat types; there is opportunity for public access and education; the conservation properties are located in a highly visible area along the Klickitat River; there is an opportunity to reduce fire hazard to protect local communities; and the properties are part of a larger network of lands with public ownership and management.

Columbia Land Trust is partnered with the Eugene District of the Bureau of Land Management (BLM) and Forest Restoration Partnership to conserve and restore Oregon white oak woodlands in Klickitat County, Washington. Project lands include two properties: Dillacort Creek (580 acres) located between river miles 5 and 6 along the Klickitat River, and Logging Camp Creek (300 acres) located near river mile 9.5 of the Klickitat River. These parcels were originally obtained by Columbia Land Trust as part of a salmonid recovery effort in the watershed; both parcels contain tributaries that support salmonid spawning and rearing habitat. Work being proposed in this project is part of a National Fish and Wildlife Foundation (NFWF) grant for restoration of oak habitat in the Willamette Valley and the East Cascades region.

Project Goals

The management goals for these conservation properties include maintenance of salmonid habitat, watershed function, and wildlife habitat for a wide variety of species that depend on or benefit from productive oak habitat. Significant oak management issues that are addressed by this project are: the increased density of trees from pre-settlement conditions; encroachment and overtopping by conifers; the increased fire hazard from existing fuel loads and stand structure; and the presence of non-native and invasive vegetation.

The purpose of this project is to initiate silvicultural work on 100 acres of land owned and managed by Columbia Land Trust to accomplish the following:

- Enhance stand condition and habitat features to improve wildlife habitat
- Reduce risk of habitat destroying fire
- Restore areas of native understory
- Initiate control of non-native invasive vegetation
- Provide a site to demonstrate to the public the implementation and results of such restoration techniques

D. Conformance with Existing Land Use Plans

Management of the project area is not within the scope of the Record of Decision and the Standards and Guidelines of the Northwest Forest Plan (U.S. Department of Agriculture and U.S. Department of the Interior 1994) or BLM management plans.

E. Relationship to Statutes, Regulations, and Other Plans

This project falls within the regulatory purview of a number of federal and state laws including the Washington State Forest Practices Act, the State Environmental Policy Act, the Federal Endangered Species Act, the National Environmental Policy Act and the National Historic Preservation Act. The proposed action is in compliance with these regulatory authorities.

F. Decisions to Be Made On This Analysis

This environmental assessment (EA) is being prepared to analyze the consequences of the following decision: *Should the BLM allocate funds through the National Fish and Wildlife Foundation grant program to enable the Columbia Land Trust to carry out oak restoration treatments on 100 acres of private land owned by the Trust*. The BLM Siuslaw Resource Area Manager must decide whether to implement (fund) the proposed action alternative or choose the no action alternative (decline to fund).

II. ISSUES OF CONCERN

The following issues were identified during project development and consultation with an interdisciplinary team of partners and agencies. Issues that directly relate to the proposed action were analyzed in detail for this EA.

Issue 1: How will proposed silvicultural treatments affect state and federally listed species of plants and wildlife?

The project area supports a diversity of wildlife species, including a number of state and federally listed species. Implementation of silvicultural prescriptions has the potential to disturb listed wildlife and their habitat.

Issue 2: How will the activities affect the spread of noxious weeds?

Noxious weeds, including yellow star thistle and knapweed, are present in the project area and could be affected by restoration treatments, especially those that involve soil disturbance.

Issue 3: How much fuel will be created by restoration activities, and how will burning of excess wood material affect air quality?

Wood material will be generated by thinning activities. A portion of the wood will be removed, a portion will be piled as wildlife structure, and a portion (up to 20 tons per acre) will be burned to avoid excessive fuel loads in areas where removal is impractical.

Issue 4: How will the proposed activities affect current fuel loads and fire risk level in the project area?

Due to long term absence of fire, vegetation is now at a condition in which fire hazard is increased. High fuel loading could result in a catastrophic fire that would be detrimental to wildlife as well as pose a potential threat to neighboring landowners.

III. PROPOSED ACTIONS AND ALTERNATIVES

A. Silvicultural Treatment of Oak and Oak/Conifer Woodlands (Proposed Action)

Oak Woodland Silvicultural Treatments

The desired future condition of oak woodlands is a mosaic of tree age classes spatially patterned to mimic both individual tree and group mortality. Stands are currently predominantly even aged and have one or two age classes which occurred as a result of fire suppression and subsequent tree regeneration on former savanna. Future age class patterns will include new age classes entering stand after groups of trees die from fire, insects and/or drought. Density of desired oak stands should allow all trees to exhibit open grown character. This translates to tree densities that vary with age but will eventually range from 25-50 trees per acre. More dense woodlands would be found on north slopes and at ecotonal edges between oak and conifer habitats. Desired understory conditions feature dominance by native bunch grasses (primarily Idaho fescue and bluebunch wheatgrass) and forbs such as *Lomatium spp*., typical of healthy prairie/savanna communities in the area. Restoring this understory composition and structure may require multiple entries to reduce stand density over time. Desired shrub cover is <10%. Understory plant communities more representative of closed woodlands would be encouraged along edges with conifer/oak and conifer dominated woodlands.

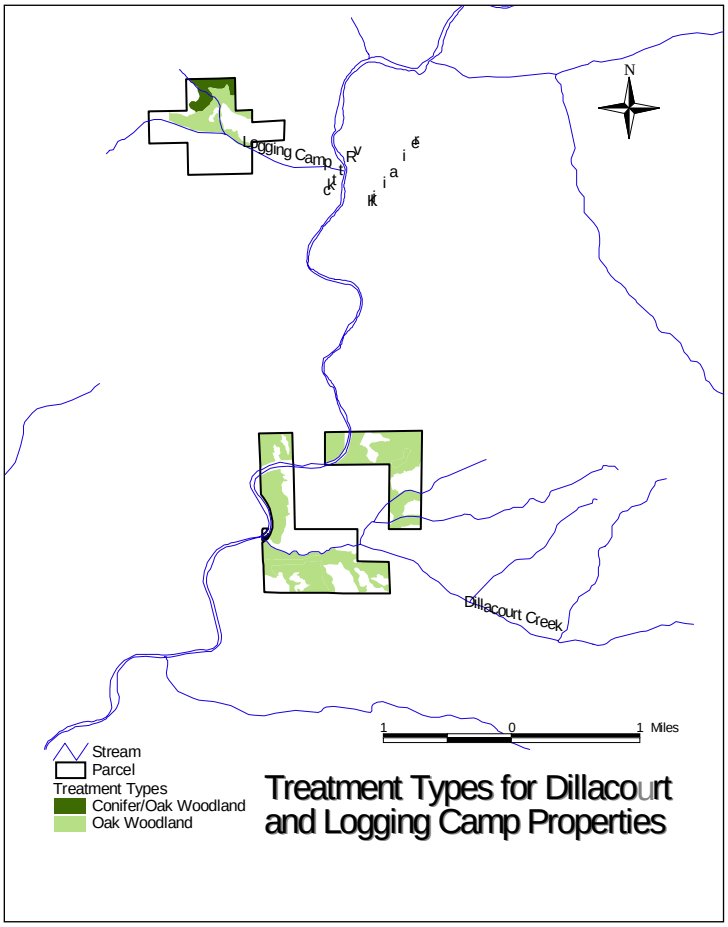

Figure 2: Conservation property locations and treatment types

Proposed treatments would include thinning, pruning, piling and burning activity fuels, and constructing wildlife wood piles on 100 of the available 416 acres of Oak Woodland (see Figure 2). Thinning treatments would have two components: 1) release of viable old cohort (remnant savanna) oaks by removing all trees within drip line (viable trees are those with at least 30 percent live crown); and 2) thinning of main oak cohort. The dominant cohort of stand would be thinned using the criteria below:

- Thinning would remove trees from smallest diameter classes (thinning from below).
- Thinning would strive to achieve residual canopy cover of 30-60%, which translates to 75-200 trees/acre (14-24'spacing) depending on average crown size and current stocking. Upper end of canopy cover % would be targeted for north slopes, and lower end for south slopes. Residual canopy cover would also be influenced by current condition of stand in terms of vigor and density of trees and composition of understory.
- Individual tree selection would prioritize retaining trees with largest diameter and crowns and those with stick nests and /or cavities.
- Thinning would focus on removing smaller trees that provide fuel ladder trees to desirable retain trees.

Pruning would occur on all trees as needed to achieve a height to crown base of at least 5 feet. Thinning material would be skidded to landings for firewood processing where existing roads are accessible. Because most areas are inaccessible for mechanized thinning, biomass in these areas would be hand piled and burned. Larger boles would be piled for wildlife. No slash would be included in these piles. A target of 3-4 piles/acre would be achieved with pile dimensions not to exceed 10'x10' in surface area and 4' tall. Piles would be constructed at least 5' beyond drip line of trees. Post-treatment surface fuels would not exceed 3 tons per acre in the combined 1, 10, and 100-hour fuel classes.

Oak/Conifer Woodland Silvicultural Treatments

The desired future condition of Conifer-Oak Woodlands includes a mix of pine, fir and oak. Oak should comprise at least 50% of stand basal area to insure dominance. Stands should be open to the extent that trees exhibit open grown character, and may contain multiple cohorts given the current occurrence of this structure between conifers and oaks. In order to reintroduce the short fire return interval effectively the development of multiple cohorts should be limited to scales larger than one acre with limits established on fuel loads and ladder fuel structure. Tree densities in mature cohorts should be 50-100 trees/acre. This density may not be achieved with initial entry, but is a long term goal. Desired understory conditions feature dominance by native bunch grasses (primarily Idaho fescue and bluebunch wheatgrass), as well as species more typical in open woodlands such as elk sedge and blue wildrye. Forb composition will vary with light levels (prairie communities in open areas and woodland communities under denser overstory conditions). Restoring understory composition and structure may require multiple entries to reduce stand density over time. Shrub cover should be <20%.

Treatments would involve thinning, pruning, piling and burning activity fuels, and constructing wildlife wood piles within the 30 acres of Conifer-Oak Woodland (see Figure 2). Thinning treatments have two components 1) release of viable oaks by removing overtopping conifers sufficient to insure future vigor (viable trees are those with at least 30 percent live crown); 2) thinning of main oak, fir and pine cohort. The stand would be thinned using criteria below:

- Viable oaks (oaks not to exceed 50% of basal area unless sufficient pine and fir are not present) would be released from competition. When release involves removing fir and pine, cutting would extend beyond drip line because conifers are often taller than oak. Trees beyond oak drip line cast shade on oak crown.
- Thinning would preserve spatial heterogeneity of tree distribution by leaving 10% of each 10-acre area un-thinned. Thinning would strive to match natural patterns within the landscape to avoid a regimented appearance upon completion of the work. Un-thinned areas would be pruned to crown base of at least five feet, and trees that cannot maintain vigor with a five foot crown base would be removed unless they are not fuel ladders.
- Thinning would strive to achieve residual canopy cover of 30-60%, which translates to 75-200 trees/acre (15-25’ spacing) depending on average crown size and current stocking.
- Individual tree selection would prioritize retaining trees with largest diameter and crowns and those with stick nests and/or cavities. Thinning would remove trees from smallest diameter classes (thinning from below) except where to release oaks.
- Thinning would focus on removing smaller fuel ladder trees, particularly conifers because of high flammability of foliage.

Pruning would occur on all trees as needed to achieve a height to crown base of at least 5 feet. Thinning material would be skidded to landings for firewood processing where existing roads are accessible. Because most areas are inaccessible for mechanized thinning, biomass in these areas would be hand piled and burned. Larger boles would be piled for wildlife. No slash would be included in these piles. A target of 5-6 piles/acre would be achieved with pile dimensions not to exceed 10’x10’ in surface area and 4’ tall. Piles would be constructed at least 10’ beyond drip line of trees. Post-treatment surface fuels would not exceed 3 tons per acre in the combined 1, 10, and 100-hour fuel classes.

Hand Work:

Hand work on the project sites includes manual cutting and pruning of trees with chainsaws and non-mechanized tools (saws, axes, loppers, etc). Slash would be hand-piled according to silvicultural prescriptions along with tree boles. Wildlife piles would be constructed by hand-piling larger limbs and tree boles. Handwork would be utilized throughout the treatment area, however a majority of the handwork would be completed on steeper slopes or where sensitivity to environmental conditions precludes the use of larger equipment.

Machine Work:

Use of machines to implement silvicultural prescriptions would focus on tree cutting along the more level slopes and near adequate existing access routes. Machine work would be done with a rubber tracked skid-steer and a sheer attachment. Trees would be grapple skidded to a processing area along existing roads where slash would be piled for burning. Existing roads and skid trails would be utilized to the extent possible, and in all areas ground disturbance would be minimized.

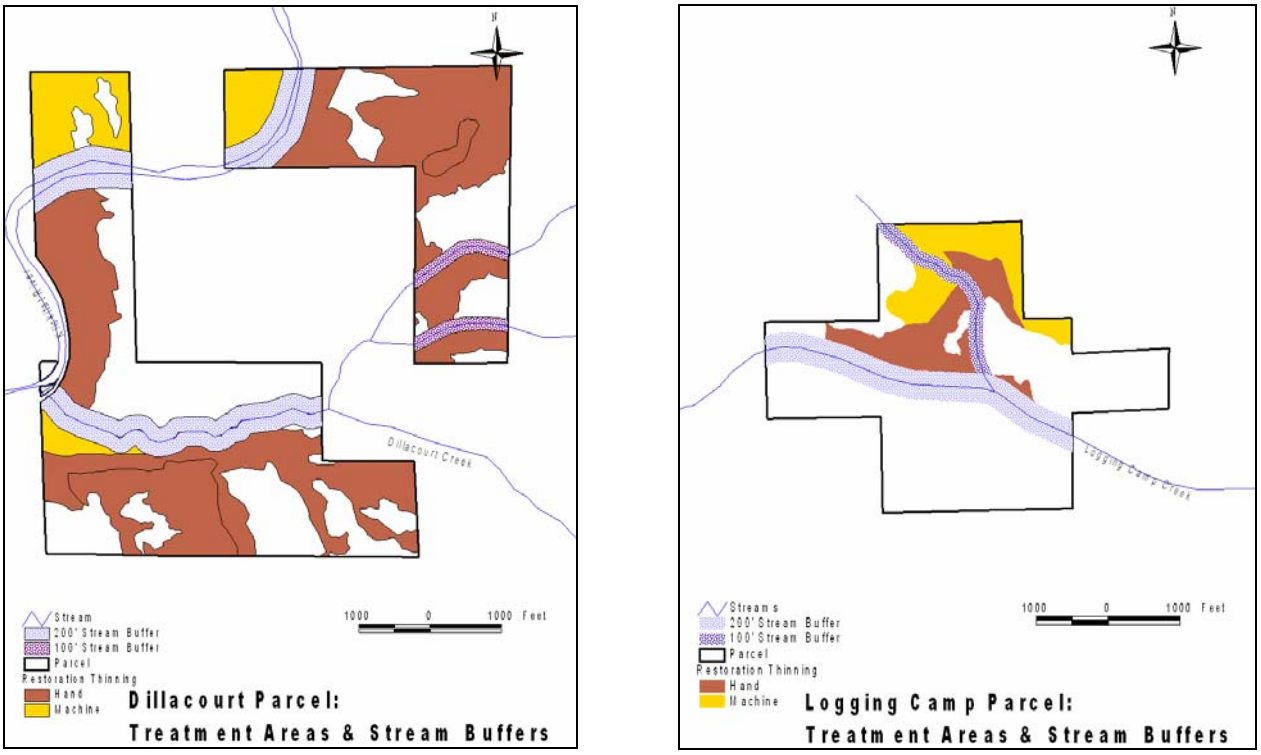

Figure 3: Restoration Treatment Areas for Klickitat Conservation Properties

Roads and Access:

Dillacort Conservation Area has two main roads for access. The first begins at the confluence of Dillacort Creek and the Klickitat River, and runs parallel on the south side of the Creek. The road is in generally poor shape (uneven ground and rocky) but is accessible for all-terrain or tracked vehicles. This road is 0.78 miles in length and crosses seasonal drainage channels in at least two locations. Some road maintenance would be required on this access road to address rilling erosion in one location and rough terrain in a second location. The second potential access point is along the abandoned rail bed that follows along the west side of the Klickitat River. This access is currently part of the Klickitat Rails-to-Trails project and could be accessible during most of the year. Access along the road would need to be granted through the Washington State Parks. Numerous skid trails from previous logging occur throughout the property, particularly on the north facing slopes south of Dillacort Creek. These existing trails would be utilized to the extent possible, and in some areas new skid trails may be established.

Logging Camp Conservation Area has two main access points. Access to the north side of the Canyon can be reached from Klickitat-Appleton Road via a private road. From the property boundary an old logging road exists that can be used for this project. In some areas the road is over-grown with shrubs and small trees, and there are downed logs that block access. These areas would be cleared for vehicular access as required to implement the proposed silvicultural treatments. Skid trails exist from previous logging occur throughout the property on both sides of the canyon. These existing trails would be utilized to the extent possible, and in some areas new skid trails may be established.

All forestry related roads would be subject to road maintenance and abandonment requirements of the Washington State Forest Practices Act. Therefore, all roads would be brought to the accepted standard (stability, erosion control, water control, etc) or effectively abandoned at the end of this project.

A.4. Timing of Project Work

Work would be conducted to minimize conflicts with natural resources. Silvicultural work on the Dillacort Creek property will begin in late June or July, 2004 and would be completed by January 31, 2005. Silvicultural work on the Logging Camp property would begin no earlier than July 15, 2004 and would be completed by January 31, 2005. Burning of wood piles would take place between November 2004 and January 2005. The majority of the work effort is planned for the fall of 2004 after birds have fledged and the fire risk is lower.

A.5. Conservation Measures

The project proposes to implement conservation measures in order to avoid or minimize the potential for adverse impacts to wildlife; in particular state and federally-listed species. There are three general strategies that would be employed to avoid potential impacts. These include establishing 'no activity' buffers around identified resources such as streams, rivers and known nest sites. Timing restrictions would be implemented to minimize disturbance during critical nesting or breeding periods. Additionally, where the potential presence of a sensitive species is not fully determined or where a species has the potential to be located in the field during activities, site-specific surveys or reviews may be employed to ensure that that impacts from the project are avoided or minimized.

If during the course of implementing prescriptions it is determined that the activities may have the potential to adversely impact a state or federally listed species, the identified activities would be ceased until the appropriate agencies could be consulted.

Specific conservation measures to be implemented for this project include the following:

- All practices would conform to Washington Forest Practice Rules. No thinning would occur within 100 feet of Type 1, 2, or 3 perennial creeks and rivers (Klickitat River, Dillacort and Logging Camp Creeks). No thinning would occur within 40 feet of Type N seasonal tributary streams not supporting fish populations (See Figure 3 for location of riparian buffers).
- To protect known populations of western gray squirrels, no activity would be allowed within 400 feet of any nest tree from June 1 through September 15. A minimum 50-foot 'no entry' buffer would be maintained throughout the project around each nest, and aerial pathways (an approximate minimum standard of 50% canopy cover) would be maintained within the outer 350-foot radius of nest buffer. Final 'no entry' areas would be determined in consultation with the WDFW regional biologist.
- Trees with existing cavity resources would not be removed.
- Implement management recommendations as applicable for wintering bald eagles along the Klickitat River, including timing of noise-generating activities and buffering activities, away from foraging and perching areas. No suitable nest, perch or roost trees would be removed.
- All existing snags and down and dead wood would be left in place unless the amount or placement of the material creates a high fire risk to the stand (as determined by standard fire risk assessment methodology).
- Activities would be conducted to minimize disturbance to soils, slopes and native vegetation. Where the soils become exposed a native grass seed mix would be spread. Temporary erosion control measures (i.e. mulching) may be implemented as needed to reduce the potential risk of soils erosion and sedimentation.
- No new roads would be constructed for this project. Existing roads have been evaluated for their stability. A road maintenance and abandonment plan would be implemented for the project as required by the Washington State Forest Practice Rules.
- The on-site populations of rare plants have been mapped. Where proposed project activities are located

within the general vicinity of the known populations, rare plant populations would be marked and avoided. Additionally, as silvicultural activities are being initiated in the field a qualified botanist or ecologist would conduct a cursory search of suitable habitat to assess if additional rare plants occur within the activity area.

- Work would not be implemented during periods of inclement weather when and where the activities have an increased potential to result in sediment reaching fish-bearing waters.

Additional conservation measures would be implemented as deemed necessary by project partners or resource agencies.

B. No Action Alternative

Under the No Action alternative for this EA, proposed silvicultural actions on the Columbia Land Trust conservation properties would not be funded under the current NFWF grant. Columbia Land Trust would deal with increasing fire hazard levels (increased fuel loads and high tree density) by monitoring and restricting use of the property to reduce possible ignition sources. Columbia Land Trust would continue to monitor the effects of growth suppression and conifer encroachment on oak stand character and would employ volunteer efforts to remove conifer saplings from oak stands and mixed oak-conifer stands. Columbia Land Trust would also continue to seek funding from other sources to accomplish this work in order to fulfill long-term stewardship responsibilities.

IV. AFFECTED ENVIRONMENT

This chapter describes the present conditions within the proposed project area that would be affected by the alternatives. The information in this chapter serves as a general baseline for determining the effects of the alternatives.

A. General Setting

The Klickitat River is located in the south-central region of the state of Washington in Klickitat County. The river flows approximately 96 miles from its headwaters in the Yakima Indian Reservation to the Columbia River Gorge just west of Lyle, Washington, where it enters the Columbia at river mile 180. The lower reaches of the Klickitat where the properties are located are characterized by steeply sloped oak and conifer woodlands, meadows, narrow gorges, and talus slopes. The watershed is located in the transition zone between the fir and pine-covered eastern slopes of the Cascade Mountains and the tabletop shrub-steppe that is characteristic of the drier, more flat land to the east.

The river drops 5,000 ft. in elevation from its headwaters to the Columbia, and passes through progressively more arid land as it flows south. Precipitation levels drop from almost 60 inches in the upper portion (most in the form of snow) to only 15 or 20 inches in the lower portion. The temperature fluctuates greatly diurnally and seasonally, reaching the 90's frequently in the summer and dropping below freezing in the winter. Water levels in the river fluctuate with these seasonal changes, but the river remains accessible for wildlife and for recreational use year-round.

Highway 142, or the Lyle-Goldendale Highway, follows the river closely, adjacent to and sometimes over 100-feet away from the river. A few homes have been built at the base of the steep hillsides along the highway; some abandoned and dilapidated, some brand new. The trend in land-use along the river has been away from resource extraction (logging, cattle grazing) towards development for vacation homes and residential use. In the first 10 or 11 miles of the river, the land use is dominated by private landowners (roughly 60-70%) and is used primarily for ranching and for residential use (some riverside development). Both the Dillacort and Logging Camp properties were used for cattle grazing when Columbia Land Trust purchased them in 2001 and 2003. The remaining 30-40% of land is in federal, state or tribal ownership.

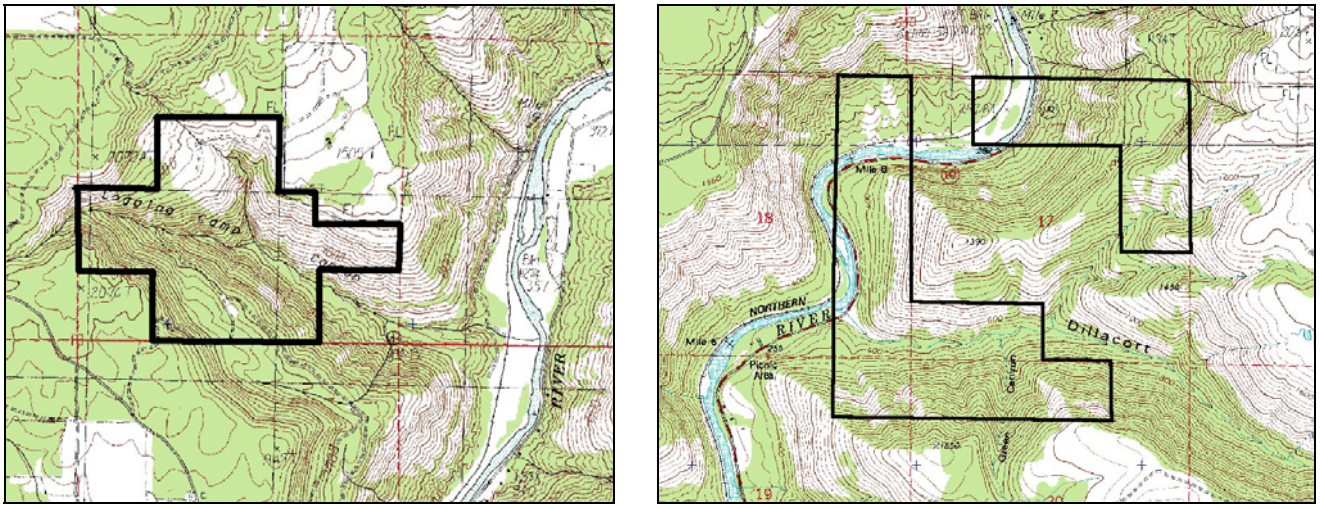

Figure 4. USGS maps of the project conservation properties: Logging Camp and Dillacort Creek

B. Geology and Soils

The Klickitat River flows through a steep-walled canyon of basalts from the Columbia River Group. Both volcanism and glaciation played important roles in the region's geology. Sediments from the Missoula Floods that culminated almost 13,000 years ago are present near the confluence of the Klickitat with the Columbia.

Given the extreme nature of the topography, the soil types are highly varied. Parent material, weathering, and substrate characteristics also impact soil type and stability. The parent material for much of the soil in the river corridor is mixed river sediment, resulting in soils that vary from silt to cobbly sand. In the low lying areas, these soils are susceptible to erosion and deposition during flood events. On the steeper slopes (8-30%), well-drained, stony loams exist in association with basalt fragments. It has low to moderate erosion potential, depending on the gradient of the slope.

C. Water

The Klickitat River is one of the longest free-flowing rivers in the state of Washington. The Dillacort property encases a quarter-mile stretch of the Klickitat River at river mile 6, before it snakes south for a half mile along the western property boundary. Dillacort Creek enters the Klickitat at the point where the Klickitat bends away from the property to the west. The Klickitat River, Dillacort Creek and Logging Camp Creek are not listed as 303(d) water quality limited bodies of water by the Environmental Protection Agency and the Washington Department of Ecology within the reaches of the project properties. Other areas within the Klickitat watershed have been listed as water quality limited for contaminants, temperature, sediment (primarily from glacial runoff), as well as other parameters.

Dillacort Creek is a seasonal tributary stream that was scoured out by 1996 floodwaters. It originates at the top of a plateau approximately four miles from its confluence with the Klickitat, draining a total of about 10 square miles of land extending east from the river. Much of the water is diverted for agricultural use upstream from the property, and combined with the loss of vegetation during recent flooding events the majority of pools in the stream bed dry up by late summer. Several smaller tributaries, many of which only carry water after rain events, contribute to the creek's discharge.

The Logging Camp property is located approximately one mile west of the creek's confluence with the Klickitat River. Logging Camp is a perennial tributary stream that drains approximately five square miles of land. This creek maintains year-round flow and supports a diverse riparian resource within the watershed.

D. Vegetation

The Klickitat River lies on the east side of the Cascade crest where the marine climate from the west transitions to the drier continental climate. The major plant community associations within the project area include ponderosa pine/Oregon white oak woodland, Oregon white oak/grassland, and open grassland habitat. The

project properties are representative of current conditions within the lower watershed: it is a mix of conifer forested stands, pine/oak woodland, oak woodland and open grasslands. The configuration of habitat types is directly related to the moisture regimes, soil characteristics and localized climates. On shaded north-facing slopes conifers tend to dominate, while the exposed southern aspect slopes with shallow rocky soils tend to be dominated by grassland.

Oak Woodland

Oregon white oak (*Quercus garryana*) woodlands are a very common vegetation type at both properties (416 acres combined on the two properties). Canopy cover is 25-100% and almost entirely oak. Douglas-fir (*Pseudotsuga menziesii*) and ponderosa pine (*Pinus ponderosa*) comprise <1 % of canopy cover. Current stand density of oaks is well beyond the range occurring prior to white settlement. Patterns of tree density are highly variable and range from open stands with tree spacing averaging 15-20 feet (100-200 trees/acre) to dense thickets with 4-6' spacing (1,200+ trees/acre).

Understory is typically composed of grass species [primarily Idaho fescue (*Festuca Idahoensis*), blue wildrye (*Elymus glaucus*) and elk sedge (*Carex geyeri*)]. Bluebunch wheatgrass (*Pseudoroegneria spicata*) occurs along stand edges and in areas with more open tree canopy. Non-native annual grasses occur throughout the oak woodland type and include cheatgrass (*bromus tectorum*), soft brome (*Bromus mollis*), ripgut brome (*Bromus rigidus*), and hedgehog dogtail (*Cynosurus echinatus*). Non-native perennial grasses include bulbous bluegrass (*Poa bulbosa*). Shrub cover of poison oak (*Rhus diversiloba*), oceanspray (*Holodiscus discolor*), snowberry (*Symphoricarpos albus*), and wild rose (*Rosa gymnocarpa*) varied from <5% to over 60%. Less common shrub species included Oregon-grape (*Berberis repens*), mockorange (*Philadelphus lewisii*), and serviceberry (*Amelanchier alnifolia*).

Oak woodlands on both properties appear to be a recent stand structure resulting from fire suppression and domestic grazing. The older cohort of oaks consists of widely spaced savanna oaks over 200 years of age. The dominant canopy cohort contains trees 130+/- years old.

Conifer/Oak Woodland

There are 30 acres of Conifer-Oak Woodland included in the project treatment area. This type occurs within the Logging Camp property on south and southeast facing slopes of 10-40%. Douglas fir is the dominant overstory tree comprising 55% or more of stand basal area containing trees 25-50 years old. The remaining overstory is composed of 120+/- year old Oregon white oak (37% of basal area) and ponderosa pine (5%). Understory varies from open with light grass/forb/shrub cover, to dense cover of shrubs. Grass cover is dominated by blue wildrye and cheatgrass. Dominant shrub cover included deer brush (*Ceanothus integerrimus*), snowberry and hazelnut (*Corylus cornuta*). Other shrubs present include poison oak, oceanspray, wild rose and serviceberry.

The conifer/oak stands were logged 28 years ago, removing most of the merchantable Douglas-fir and ponderosa pine and leaving oaks and submerchantable conifers. Prior to logging, this area was dominated by 70-100+ year old Douglas fir and scattered oaks. Most of the stumps were <20" diameter, suggesting this area was oak dominated prior to white settlement.

Sensitive Species

There are a number of sensitive plant species known to occur within the Klickitat River watershed. A rare plant survey was conducted in 2003 to assess potential rare plant populations on the conservation properties owned by Columbia Land Trust (Arnett and Beck, 2003). This survey determined that there are several species located on the Dillacort and Logging Camp conservation properties. A summary of this survey is provided in Table 1 below.

Table 1. Rare Plant Survey Results (2003)

Plant species	Federal and state status	Dillacort Property	Logging Camp Property
Suksdorf's desert-parsley *Lomatium suksdorfii*	Federal Species of Concern State Sensitive	8 locations	12 locations
Gooseberry-leaved alumroot *Heuchera grossularifolia*	State Sensitive	15 locations	9 locations
Common blue-cup *Githopsis specularioides*	State Sensitive	1 location	0 locations

E. Fish and Wildlife

A large variety of wildlife species are associated with the Klickitat subbasin because of the area's diverse vegetative and geologic features. The riparian areas provide important corridors and resources for wildlife, and represent some of the highest diversity habitat within the watershed. Oak woodlands are also known to provide habitat for over 200 species of wildlife ranging from migratory birds to mammals to insects. Cavity resources within oak woodlands also provide an important resource for cavity nesting wildlife including western gray squirrel and woodpeckers. The diversity of habitat types provides ample opportunity for wildlife to meet various life history requirements including migration, cover, nesting, roosting, foraging and denning.

A majority of the wildlife species using the project area are able to take advantage of resources provided by oak woodland habitat. Oak-associated wildlife species and groups include woodpeckers, western gray squirrel, neotropical migrant birds, turkeys, deer, reptiles (California mountain king snake, sharptail snake, southern alligator lizard) and invertebrates (moths, butterflies, gall wasps and spiders). This habitat type is declining throughout its historic range due to human encroachment and use. Suppression of fires and alteration of its return frequency has decreased the habitat value for native species. Historically frequent, but low-intensity fires in this community has controlled stand density, regenerated the grass and herbaceous layer, and kept fuel accumulations low. The stability of the ecosystem has declined with fire suppression

Black-tailed deer are one of the most important game species in Washington and are associated with east-side oak habitat. Within the Klickitat Basin, black-tailed deer provide significant recreational hunting opportunities to the public. The Klickitat deer herd is considered unique due to its large-scale migrations that incorporate a very large landscape, which includes federal, state, private and tribal reservation lands. Historically, the Klickitat Basin deer herd was much larger than its current size. With improved wildlife management the population has rebounded. Black-tailed deer within the Klickitat river watershed are fairly productive and rely on a variety of habitat types. The rivers and tributaries provide sources of water and green vegetation, mixed conifer stands provide thermal and resting cover, oak woodlands provide foraging habitat and cover, and open grasslands provide productive foraging habitat.

The Klickitat River, Dillacort Creek and Logging Camp Creek also provide important habitat for salmonids. These riparian resources provide for salmonid migration, spawning, rearing and refugia. There are a number of federally listed salmonid species within the project area including steelhead trout, bull trout and chinook salmon. These species are discussed in more detail below.

Federally and State Listed Species

A number of listed species are known to utilize the project area within the Klickitat watershed. Project proponents have prepared a Biological Assessment (Columbia Land Trust, March 2004) to determine potential project impacts to federally listed and proposed species of wildlife.

Table 2: State and federally listed species potentially occurring within the project area

Species	Federal Status	State Status	Habitat Present?	Species Presence Documented?
Fish				
Steelhead– Winter & Summer (*Oncorhynchus mykiss*)	T	T	Yes	Yes – rearing and spawning habitat documented in creeks
Chinook – Spring & Fall (*Oncorhynchus tshawytscha*)	T	C	Yes	Yes – spawning, migration and rearing habitat within Klickitat River
Bull trout (Columbia R.) (*Salvelinus confluentus*)	T	T	Yes	Species present within the Klickitat watershed
Wildlife				
Bald eagle (*Haliatus leucocephalus*)	T	T	Yes	Wintering habitat along Klickitat River, no documented nest sites
N. spotted owl *(Strix occidentalis caurina*)	T	E	Yes	Nest sites documented in project vicinity, potential habitat exists on sites
Marbled Murrelet (*Brachyramphus marmoratus*)	T	T	No	No – outside of species range
Lynx (*Lynx Canadensis*)	T	T	No	No – outside of species range
Gray Wolf (*Canis lupus*)	T	E	No	No – outside of known range
Western gray squirrel *(Sciurus griseus)*	FCo	T	Yes	Yes – Nests have been mapped within the project vicinity
Mardon skipper (*Polites mardon*)	C	E	Poss.	No – on the southern edge of species range.
Oregon spotted frog *(Rana pretiosa)*	FC	E	No	No – upland habitat not suitable for species

Salmonids

The Klickitat River watershed supports three species and six stocks of anadromous salmonids: steelhead trout, coho salmon, and chinook salmon. Additionally, bull trout occur within the upper and lower portions of the watershed. Of these populations, only spring chinook, summer steelhead and bull trout are known to have historical occurrence within the watershed above Lyle Falls (river mile 3). Other stocks are of mixed hatchery origin, are currently only suspected of being present, or are present due to access enhancement at Lyle Falls in the 1940s. Bull Trout are currently only known to occur in the West Fork Klickitat River (river mile 63) as well as near the confluence with the Columbia River.

The Washington Conservation Commission completed a Limiting Factors Analysis (LFA) for the Klickitat River watershed that documented known salmonid use and the factors that limit the production (WCC 1999). The LFA identified a number of factors within the watershed that limit the habitat quality for salmonids. Included in the list of limiting factors are access to tributaries with quality spawning and rearing habitat, water quantity and quality, and habitat processes such as large and small wood material recruitment. Sediment inputs on a more local scale also represent a limiting factor in a number of the tributaries to the Klickitat River.

Logging Camp and Dillacort Creeks provide some of the last and best vestiges of quality spawning and rearing habitat accessible to steelhead and coho in the lower Klickitat River watershed. Wild steelhead stocks (summer and winter run) have limited tributary spawning and rearing opportunities in this portion of the basin. The riparian and stream habitat is still intact and functional for both of these tributaries.

The project sites historically served as spawning and rearing habitat for steelhead trout. Logging Camp Creek in particular provides late season flow and maintains cold water pools for rearing fish. Currently, coho and other salmonid species not specifically native to the Klickitat River system are able to access portions of the tributary

creek. These stocks are thought to use the tributaries primarily for refugia (both thermal and high flow) and rearing habitat. Some salmon spawning may occur in the lower reaches of the tributary. Logging Camp Creek is accessible to salmonids and provides spawning and rearing habitat, as well as a good source of late season water less than 65 degree F. Logging Camp Creek maintained surface flows at least through late September 2001 and 2003; both being below average precipitation years. The presence of clear, cool late season flow significantly increases the importance of this system for salmonids.

Dillacort Creek was blocked to fish passage until 1999 when the SR 142 culvert was replaced with a large arch culvert. Since the replacement of the culvert, steelhead redds have been located along the lower 0.5 mile of the creek, and numerous rearing salmonids (coho and steelhead) have been observed in all of the late season pools that in normal rainfall years persist through the summer months.

Bald Eagle

The Washington Department of Fish and Wildlife (WDFW) have identified a number of key limiting factors to the recovery of this species in the state of Washington (WDFW, 1999). Key among these factors are activities that permanently alter bald eagle habitat (e.g., removal of nest, roost, and perch trees, and removal of buffers without regeneration of trees of adequate size and structure), and activities that temporarily disturb eagles to the point of reproductive failure or reduced vigor (e.g., construction, logging, pedestrian activity, boating).

WDFW has developed a set of management recommendations for bald eagle resources in Washington State. These recommendations are consistent with the Pacific Bald Eagle Recovery Plan developed by the US Fish and Wildlife Service (USFWS, 1986). Relevant portions of these management recommendations include the following:

- Activities that produce noise or visual effects within 120 m (400 ft) of the edges of communal roost trees or staging trees should be conducted outside of the critical roosting period (November 15 - March 15).
- Consider timing restrictions to avoid activities that may disturb eagles during critical periods:

  Breeding: 1 January - 31 August within 800 ft of nest trees

  Wintering: 15 November-15 March within 400 ft of roost stands
- Buffer bald eagle nests (if present) with a two-zone management system, consisting of a protected zone 120 m (400 ft) from the nest tree and a conditioned zone that extends from 100 to 240 m (330-800 ft) beyond the edge of the protected zone. The size and shape of each zone will depend on screening vegetation, prevailing winds, topography, and the sensitivity of the nesting eagles to human activities. Large trees (>20 in dbh) should be retained in both zones.
- In foraging areas with little or no screening, bald eagles that are feeding should be allowed at least 450 m (1500 ft) from human activity and permanent structures.
- Perch trees and potential foraging perches >51 cm (20 in) dbh and <75 m (246 ft) from the top of a bank or shore should be protected.

Bald eagles are currently a common winter visitor to the Klickitat River watershed, and are known to nest within the watershed but not within the Action Area. The WDFW Priority Habitat and Species (PHS) maps identify regular winter concentrations of bald eagles along the Klickitat River (WDFW PHS, December, 2001). Up to 40 individual eagles have been sighted by Land Trust staff along the river during one winter day between Lyle on the Columbia River and the town of Klickitat located approximately at river mile 12. These wintering eagles can be seen to be perched in large pine trees, foraging along the riparian area, or sitting down along the shoreline. During frequent visits by Land Trust staff to the Klickitat conservation properties during the past three years, no eagles have been observed foraging or perching along Dillacort or Logging Camp Creeks.

WDFW PHS maps, Land Trust observations and resource agency records (Weiler, Personal Communication, 3/03/04) do not indicate that there are any nest sites within the vicinity of both properties. The US Forest Service and US Fish and Wildlife Service are currently conducting joint surveys for wintering and nesting bald eagles along the Columbia and Klickitat Rivers (to river mile 14). This is the first of a five year study that, to

date, has not located any eagle nests or roost sites within the project vicinity (Flick, Personal Communication, 3/5/04). Additionally, surveys conducted in 2003 for the Klickitat Rails to Trails project, which runs along the Klickitat River and through both project areas, did not locate a nest or roost sites within 0.5 miles of the Klickitat River (USFS, 2003). Land Trust staff will continue to be in touch with this survey project to incorporate any new information from the survey into land management activities.

To date, there has been no detailed information regarding roost sites within the lower watershed (the US Forest Service/USFWS surveys are assisting with this information gap). Bald eagles can roost close to water bodies or as much as several kilometers from water where the habitat is suitable and roosting structure present (Stalmaster, 1987). However, since project work will be conducted during the daylight hours, no specific sites have been identified in surveys, and all suitable roost structure will be retained, there is minimal concern that roost habitat will be disturbed by the project. Therefore, the key concerns for this project regarding bald eagles are the potential disturbance of suitable nest habitat (tree structure) and the disturbance of wintering bald eagle activities.

Critical wintering period for bald eagles in Washington is between October 31st and March 31st (WDFW, 1999). A good food supply is probably the most important element of bald eagle breeding and wintering areas. On the Klickitat River, it is likely fish, waterfowl and carrion are the most common food sources for bald eagles. Eagles primarily forage during the morning hours, but are opportunistic as well, depending on available resources and existing conditions. Activities that disturb eagles during feeding, especially during winter, can cause them to expend more energy, which increases their susceptibility to disease and poor health (Stalmaster, 1987). The eagles wintering within the action area primarily appear to focus their foraging along the Klickitat River as no eagles have been observed by Land Trust staff along the tributaries.

Spotted Owl

Northern spotted owls generally have large home ranges and use large tracts of land containing significant acreage of older forest to meet their biological needs. Northern spotted owl habitat consists of four components: (1) Nesting, (2) roosting, (3) foraging, and (4) dispersal. The attributes of good nesting and roosting habitat typically include a moderate to high canopy closure (60 to 80 percent closure); a multi-layered, multi-species canopy with large overstory trees; a high incidence of large trees with various deformities (e.g., large cavities, broken tops and debris accumulations); large accumulations of fallen trees and other debris; and sufficient open space below the canopy for owls to fly (Thomas, et al. 1990). The BLM also includes a mean diameter at breast height of 18 inches to the suitable nesting, roosting and foraging habitat definition (Greenquist, 2004). Dispersal habitat is generally defined as conifer stands with a minimum 11 inch mean dbh and 40% canopy closure.

Spotted owls use a wide array of forest types for foraging, including open and fragmented habitat. Habitat that meets the spotted owl's need for nesting and roosting also provides foraging habitat. However, some habitat that supports foraging may be inadequate for nesting and roosting. In much of the species' northern range, large, dense forests are also chosen as foraging habitat, probably because they provide relatively high densities of favored prey, the northern flying squirrel (*Glaucomys sabrinus*), as well as cover from predators. Because much of the flying squirrel's diet is fungal material, old decadent forests provide superior foraging habitat for owls.

Although habitat that allows spotted owls to disperse may be unsuitable for nesting, roosting, or foraging, it provides an important linkage among blocks of nesting habitat both locally and over the range of the northern spotted owl. This linkage is essential to the conservation of the spotted owl. Dispersal habitat, at a minimum, consists of forest stands with adequate tree size and canopy closure to provide some degree of protection to spotted owls from avian predators and to allow the owls to forage at least occasionally.

Washington DNR regulate forest practices being conducted outside of Spotted Owl Special Emphasis Areas (SOSEA) such as the Klickitat conservation properties by providing activity and timing limitations for high quality habitat located around spotted owl site centers (typically nest and/or occurrence sites). These limitations include harvesting, road construction, or aerial application of pesticides, between March 1 and August 31. The highest quality suitable habitat is determined by the DNR in cooperation with WDFW, and site centers/spotted owl circles are mapped on the PHS maps.

The following timing restrictions/guidelines have been established by the FWS to minimize potential impacts to spotted owls during critical periods (Greenquist, 2004):

- Breeding -Disturbances within 0.25 mile of suitable habitat between March 1 and July 15
- Late Breeding - Disturbance within 0.25 mile of suitable habitat between July 16 and September 30
- Dispersal - Disturbance within 0.25 mile of dispersal habitat between March 1 and September 30

The project areas, and forest lands immediately adjacent to these areas, do not have the habitat attributes to qualify these forestlands as suitable nesting or roosting habitat for the northern spotted owl. On-site conifer stands are typically less than 50 years old; contain a mix of conifer, deciduous and shrub species; lack desired wood structure; and have a typically dense mid and understory vegetation layers. Lands within the project vicinity, but not on the specific conservation properties, includes forest stands that may meet the suitability criteria; particularly with age and mean diameter classifications. The suitability of these habitats for nesting and roosting has not been specifically assessed. There are two documented spotted owl circles located within the vicinity of the action area; both have outer boundaries located within two miles of the Logging Camp property. The outer edge of the closest circle boundary is approximately one mile west of the Logging Camp property boundary; the site center itself is approximately 2.5 miles from the property boundary. Neither circle is located within the action area of this assessment. Additionally, it appears that these nest locations have been abandoned by spotted owls and are now occupied by barred owls (Steve Brown, WA DNR, Personal Communication, 2/26/04).

Washington Department of Natural Resources (WA DNR) is a major landowner of potentially suitable spotted owl habitat within the Logging Camp Action Area. WA DNR has adopted a Habitat Conservation Plan (HCP) for spotted owls on the east side of the Cascade Mountains. This plan details areas that are to be held in conservation for spotted owls, areas to be managed for spotted owl habitat, as well as areas that have no management role under the HCP. All of the state owned land within the Action Area of this assessment does not have a role under the HCP adopted by WA DNR (Steve Brown, WA DNR, Personal Communication, 2/26/04). While this does not mean suitable habitat is non-existent, it does indicate the habitat is less valuable for this species than other lands in the general vicinity.

Western Gray Squirrel

The western gray squirrel is a state listed threatened species with two main populations within the state: one on the west side of the Cascade Mountains in the Puget Trough, and a second on the East side of the Cascade Mountains within the oak and oak/pine habitat zones. Klickitat County is the core area for the western gray squirrel in Washington State. This species is closely associated with pine/oak woodland within the Columbia River Gorge and east-side oak habitat.

Optimum habitat is considered to be mature or mixed age open oak/pine woodland, with interconnected canopy to aid in arboreal travel. Western Grey squirrels are generalist feeders: they rely on pine cones, acorns and other nuts, some fungi, berries and occasionally insects. Food consumption peaks in summer or autumn and decreases in winter. Western grey squirrels are scatter-hoarders whereby they carry nuts in their jaws and bury them in various locations within their home ranges. Olfaction and memory are used in locating their caches.

Project proponents have mapped all of the known squirrel nests on the project properties. These surveys were conducted with staff and volunteers between 2002 and 2004 with technical support from WDFW personnel. These nests have been mapped (Figure 5). Avoidance buffers will be established around each nest site in coordination with the WDFW Regional Biologist to ensure that potential impacts to this species are minimized.

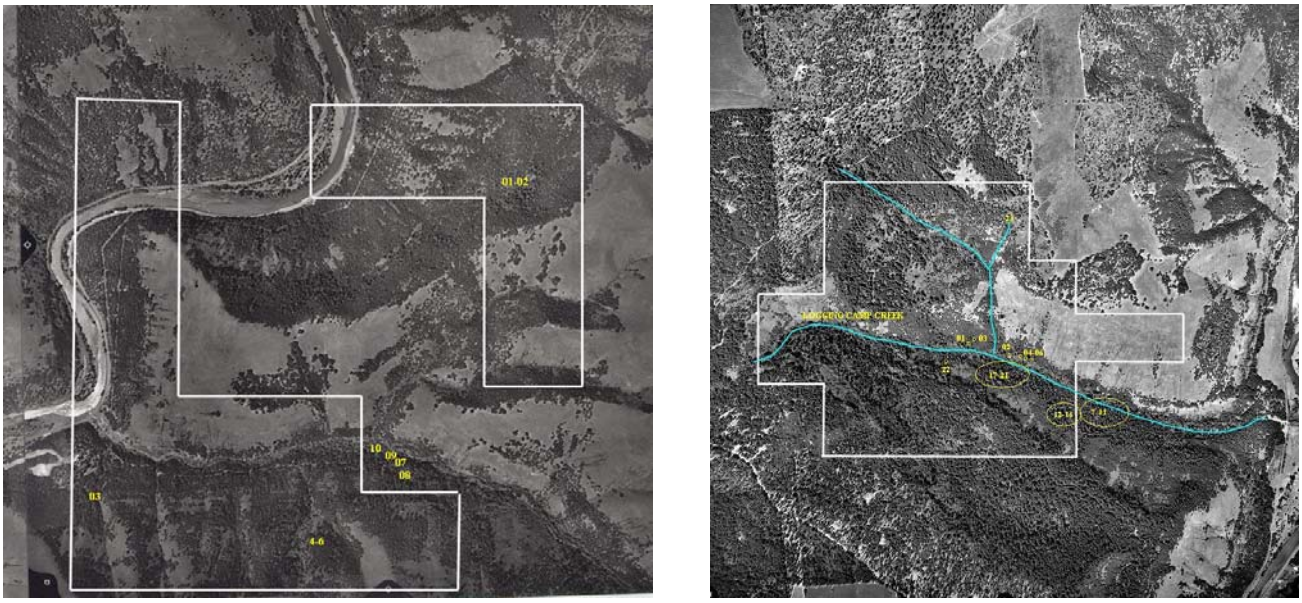

Figure 5. Western gray squirrel nest location map

Mardon Skipper

The mardon skipper (*Polites mardon*) is a small, non-migratory butterfly species. The Mardon skipper is a rare, northwestern butterfly with a remarkably disjunct range. This species is currently known from four widely separated locations: the southern Puget region, the southern Washington Cascades, the Siskiyou Mountains in southern Oregon, and coastal northern California. The Washington distribution includes small concentrations which occur in the Tenino Prairies and south-central Cascades (Thurston, Yakima, and northern Klickitat counties). Mardon skippers are noted in less than 10 Washington locations. Surveys conducted in 1998 for the southern Cascade Range located a majority of occurrences near Mt. Adams in the grand fir (*Abies grandis*) zone.

The mardon skipper is endemic to the Pacific Northwest. It primarily inhabits open grasslands on glacial outwash prairies, as well as openings and ridgetops within ponderosa pine woodlands. Idaho fescue is the suspected host plant (USFWS 2002). In Washington, adults emerge between May and July for a month long flight period; emergence dates are earlier at low-elevation Puget Prairie sites than at South Cascades sites. Factors that degrade mardon skipper obligate grasslands limit this species, particularly since it is a non-migratory species with limited dispersal range. Loss of native grassland habitat through development, overgrazing and fertilization, herbicide application, the introduction of plants such as Scots broom, and natural succession within forest communities threaten mardon skipper butterflies.

The project area is located at the southeastern edge of the mardon skipper's range. Although there is potential habitat for this species, there are no records for it in the project vicinity and it is unlikely to occur on either of the project sites. Project activities would ultimately improve conditions for this species by reducing density of trees and enhancing native understory species, particularly bunchgrasses.

F. Air Quality

Air quality directly affects plant, animal and human habitat, and affects the many scenic and recreational opportunities within the project area. Additionally, there are a number of communities and residences in the area that could potentially be affected by smoke emissions related to burning slash from silvicultural operations.

Visibility and air quality are being monitored by the Forest Service and Washington Department of Ecology in the Columbia River Gorge area (USFS 2003). The Federal Environmental Protection Agency has developed

and promulgated National Ambient Air Quality Standards (NAAQS) for six pollutants: carbon monoxide, nitrogen dioxide, sulfur, dioxin, lead, ozone, and particulate matter. The standards were established to protect public health and welfare. States are responsible for developing and implementing programs to assure that the NAAQS and any other standards are met. Washington has developed a Smoke Management Plan that details the procedures and lines of authority for land management burning in the state.

The Washington Smoke Management Plan regulates the amount, location and method of burning that can take place in any given region. Numerous areas in the Region are classified "designated areas" in the Smoke Management Plan. The Klickitat area is not classified as a designated area. Project proponents will be required to apply for and receive a burn permit from the Washington Department of Natural Resources prior to implementing slash and other wood material burning on the project sites. The permit will establish limits and procedures to be followed that ensure compliance with the Washington Smoke Management Plan and other regulatory requirements.

V. ENVIRONMENTAL CONSEQUENCES

This section addresses the potential environmental impacts that could result with the implementation of each alternative as they relate to the critical issues. Direct, indirect and cumulative effects are described. The latter are effects which occur because of a combination of past, current, and reasonably foreseeable future actions.

A. Past, Present, and Reasonably Foreseeable Future Actions

The lower Klickitat River watershed is undergoing a transformation from agricultural and forestry based uses towards more residential and recreational uses. More and more land is being divided into smaller acreages and converted to uses that are not conservation or resource based. This trend is generally expected to continue as more people discover and move to the area.

Columbia Land Trust has acquired these lands to protect critical watershed areas for conservation and to offset this conversion of land uses. Additionally, there are significant portions of the watershed that remain in public ownership – both state and federal. There is also a growing interest on the part of public agencies and private landowners in maintaining oak woodlands and the conservation values provided by this habitat type. There is also a strong community interest in reducing potential fire hazard as more landowners develop their properties. It can be expected that more attention will be focused on these resource issues within the watershed. The management activities proposed on Land Trust properties will aid understanding and provide a valuable demonstration site for oak management techniques. The proposed action can facilitate habitat and resource benefits on a wider scale as well as contribute to research and understanding of habitat management.

B. Unaffected Resources

The following resources are either not present or would not be affected by any of the alternatives: Areas of Critical Environmental Concern, prime or unique farmlands, floodplains, Native American religious concerns, solid or hazardous wastes, wilderness, minority populations, and low income populations.

C. Critical Issues Analysis

Issue 1: How will proposed silvicultural treatments affect federal and state listed species of plants and wildlife?

A Biological Assessment Has Been Completed And Submitted To U.S. Fish And Wildlife Service And NOAA Fisheries For Review And Concurrence On Potential project impacts to federally listed species. The findings of this BA are summarized in this section. Additionally, potential project impacts to state listed species are discussed below.

Salmonids

Action Alternative:

The proposed project effects determination for all salmonid species within the project area is ‘no effect.’ This determination is based on the timing of the project activities (dry season), use of protection buffers along

riparian corridors, and the implementation of conservation measures (see Section A.5). All trees and vegetation along the riparian corridors would be maintained to protect stream shading and other watershed processes. Roads would not be constructed as part of this project and all potential sources of erosion or slope instability would be avoided or carefully managed. All equipment crossing drainages would be accomplished using existing roads. Additionally, a majority of the work would be conducted during the drier portions of the year to minimize potential inputs or sediment or other contaminants into the waterways.

No-Action Alternative:
The No-Action Alternative would maintain the existing habitat qualities for salmonids within the Logging Camp and Dillacort Creek tributaries.

Bald Eagle

Action Alternative:
The potential exists to disturb nesting eagles since suitable nest structure exists within the action area of the project. However, based on the types of activities being conducted, the timing of these activities and the on-going survey effort to locate nest sites, the potential of disturbing nesting eagles is relatively low. There is also the potential for disturbance to wintering bald eagles from activities that would take place during the winter months. These activities, however, would be limited and would not be in close proximity to the Klickitat River or known roost sites. Therefore, the risk of the proposed project adversely effecting wintering bald eagles is also very low.

Initial work would entail the layout of prescription activities (tree marking, entry determination, and priority area demarcation) and initiation of handwork on the upper portions of Dillacort Creek and the Logging Camp property. These activities would conform to the management recommendations outlined above. Spring activities would continue until fire restrictions limit the work, and would commence again once these restrictions are lifted in the fall. No trees over 12 inches dbh would be removed (the large majority of trees would be less than 8 inches dbh). Additionally, silvicultural activities would be implemented in such a way as to avoid damage to potential nest trees, including root compaction, falling damage and windthrow exposure. It is anticipated that with these conservation measures, the potential for indirect impacts to bald eagles will be avoided.

If bald eagle activity is noted in the area during project activities, the FWS would be contacted and appropriate measures would be implemented to avoid any disturbance to potential roost sites or nests.

No-Action Alternative:
The No-Action Alternative would maintain the existing habitat qualities for bald eagle and there would be no direct disturbance to this species resulting from proposed forestry activities.

Spotted Owl

Action Alternative:
Proposed project activities would facilitate the release of conifer and oak to promote tree growth and food resources for wildlife. Silvicultural prescriptions would maintain the most positive forest attributes for spotted owls (larger overstory conifers). In addition understory and midstory characteristics would be enhanced as well as the amount and diversity of coarse wood (snags, downed woody debris) that may benefit spotted owls in the long term. No owl nesting structure would be modified. There is the potential for some short-term impacts to potential foraging and dispersal habitat from thinning of conifers.

The project is likely to have a long term beneficial effect for the spotted owl by facilitating the development of suitable stand structure. However, since silvicultural activities would be conducted during portions of the breeding period there is potential for disturbance effects to this species.

No-Action Alternative:
The No-Action Alternative would maintain the existing habitat qualities for spotted owl. Unless a fire damages the stand, the habitat would continue to develop in age and structure to benefit this species. The stand development process would take longer without the proposed silvicultural treatments.

Western Gray Squirrel

Action Alternative:

There is the potential for some short-term impacts to squirrels due to disturbance of their habitat from project activities. However, this species is expected to benefit from thinning activities within the project area over the long-term. In general, larger and more mature trees produce more mast (acorn, pine/fir seeds) than younger stands; a critical winter food item for the squirrel. Thinning of stands, as once occurred with regular low intensity fires, should result in accelerated growth in the oaks and pines by increasing the availability of critical resources (moisture). A majority of the trees to be removed are expected to be the suppressed individuals that compete for resources, but do not produce as much mast or provide similar cavity resources as larger, more dominant oaks. Additionally, thinning of encroaching conifers would prevent over-topping and subsequent loss of oaks.

No-Action Alternative:

The No-Action Alternative would maintain the existing habitat qualities for western gray squirrel. Over time, conifers would continue to encroach into oak woodlands and reduce the overall quality of that habitat for this species.

Mardon Skipper

Action Alternative:

The project area is located at the southeastern edge of the mardon skipper's range. However, the habitat is potentially suitable for this species. Project activities would reduce the density of tree species and enhance the potential for the native understory, in particular native bunchgrasses, to return and increase in cover.

No-Action Alternative:

The No-Action alternative would maintain the status quo of potential habitat availability on the southern extent of the Mardon Skipper's range.

Issue 2: How will the activities affect the spread of noxious weeds?

Action Alternative:

Silvicultural activities have the potential to spread populations of noxious weeds. Entering the sites with equipment and personnel can facilitate the spread of noxious species. Opening canopy cover in some areas and creating soil disturbance may also spread and invigorate weed populations. Columbia Land Trust is actively implementing a weed management plan for the conservation properties that includes mapping the presence and extent of existing weed populations. Control and eradication activities are currently being implemented for species of concern. A weed management plan (currently under development) will document existing weed populations and will develop control strategies to limit weed dispersal and presence on the properties. Known populations would be flagged and either controlled prior to implementing silvicultural activities or avoided as a potential vector.

No-Action Alternative:

Columbia Land Trust will be implementing a weed control plan regardless of the proposed silvicultural treatments. Implementation of the No-Action alternative would reduce site activities that have the potential to spread existing weed populations and/or create conditions that invigorate existing populations. However, under the No-Action alternative actions would not be taken to reduce the threat of high-risk fire, which could provide invasive weeds opportunity to colonize previously protected areas.

Issue 3: How much fuel will be created by restoration activities, and how will burning of excess wood material affect air quality?

Action Alternative:

The project would generate a maximum of 20 tons per acre of organic material that may be burned during winter months when fire hazard is significantly reduced and climactic conditions are more conducive to smoke dispersal. There would be a short-term impact to air quality within the project vicinity. Burning activities would comply with the limits and procedures required under the Washington Smoke Management Plan and other regulatory requirements.

No-Action Alternative:

The No-Action alternative would result in no prescribed burning or smoke-generating activities. Air quality would remain unchanged.

Issue 4: How will the proposed activities affect current fuel loads and fire risk level in the project area?

Action Alternative:

Current fuel loads within the project areas have been calculated and the relative risk of catastrophic fire is considered to be moderate to high. The Proposed Action would reduce the fire risk in the project area by reducing current fuel loads. Areas with the highest fire risk (higher fuel loads, likely ignition sources, etc) would be prioritized for treatment. The following Action Alternative prescriptions would contribute to fire risk reduction: thinning smallest diameter trees from treatment areas, especially those that would act as a fuel ladder to more established tree crowns; pruning un-thinned areas to a crown base of at least five feet; constructing wildlife piles at least five feet from the drip line of oak crowns; burning or removing slash from site (only larger boles would be included in wildlife piles); and ensuring post-treatment surface fuels do not exceed 3 tons per acre in the combined fuel classes.

No-Action Alternative:

Implementation of the No-Action alternative would not reduce current fuel loads in the project area. Fire risk would remain elevated for the project area and adjacent properties.

D. Cumulative Effects

The proposed Action Alternative would result in the enhancement of stand conditions and habitat qualities for 100 acres of oak and oak/conifer stands along the Klickitat River. The project is located within a significant region for oak habitat. It is reasonably foreseeable that resource agencies such as: Washington Department of Fish and Wildlife; Washington Department of Natural Resources; and Washington State Parks, which are major landowners in the area, would be managing oak communities on their lands in a way that benefits the wildlife species that utilize them. The proposed project also complements fire hazard reduction activities that are being implemented on adjacent lands.

VI. CONSULTATION AND COORDINATION

A. List of Preparers

Ian Sinks	Stewardship Director, Columbia Land Trust
Darin Stringer	Director, Forest Restoration Partnership

Several other public and private entities contributed to the project design and drafting of this environmental assessment. These entities include: Robin Dobson, U.S. Forest Service – Columbia River National Scenic Area; Carla Alford, Eugene Bureau of Land Management; and Will Conley of the Yakama Nation Fisheries Program. Additional input and comment regarding forestry prescriptions and project approach has been provided by Bill Weiler and David Anderson of Washington Department of Fish and Wildlife.

B. Public Participation

A public notice advertising the availability of this EA and preliminary FONSI will be published in the Goldendale Sentinel. In addition, the EA is being mailed to Kickitat County commission, local landowners, tribes, agencies, and members of the public that have expressed interest in the project.

C. Consultation

The Washington State Historic Preservation Office was notified of the proposed project and has determined that the proposed undertaking would have no effect on cultural resources (letter dated February 18, 2004).

Consultation with US Fish and Wildlife Service on the Proposed Action has concluded. The BLM has received a letter of concurrence from the USFWS on a May Affect, Not Likely to Adversely Affect determination for the project.

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UNITED STATES DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT
EUGENE DISTRICT OFFICE

Finding of No Significant Impact
for
Klickitat Oak Woodland Restoration and Demonstration Project:
Logging Camp and Dillacort Creek Conservation Properties

Determination:

On the basis of the information contained in the EA (OR090-EA-04-16), and all other information available to me, it is my determination that implementation of the Klikitat Oak Woodland Restoration and Demonstration Project (proposed action): (1) would have no significant environmental impact and (2) does not constitute a major federal action having a significant effect on the human environment. Therefore, an environmental impact statement or a supplement to the existing environmental impact statement is not necessary and will not be prepared.

Steven Calish, Field Manager
Siuslaw Resource Area

Date: